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ABSTRACT

This booklet describes the Advanced Technological Education (ATE) program sponsored by the National Science Foundation (NSF). The ATE encourages improvements in advanced technological education at the national and regional levels using curriculum development and program improvement at the undergraduate and secondary school levels. The ATE not only prepares students to enter the technical workforce, but also provides a solid foundation for continued education. Currently, the ATE program is supporting 11 Centers of Excellence, located in community colleges across the country, and about 160 projects. The projects focus on specific aspects of technician education, such as curriculum and educational materials, faculty and teacher preparation, technical experiences for students and laboratory development. Brief descriptions of each of the programs are provided for the 11 participating community colleges: (1) Bellevue Community College, WA; (2) Chemeketa Community College, OR; (3) Eastern Iowa Community College District; (4) Maricopa Community College District, AZ; (5) Middlesex County College, NJ; (6) Monterey Peninsula College, CA; (7) San Francisco Community College District, CA; (8) Sinclair Community College & University of Dayton, OH; (9) South Carolina Technical College System; (10) Springfield Technical Community College, MA; and (11) Texas State Technical College, Sweetwater. All centers and most projects have extensive partnerships with businesses and industry, and also with other two-year colleges, four-year institutions and secondary schools. (JJL)

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An Overview and Profile of 11 National Centers

ED 460 743

Advanced Technological Education

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National Science Foundation

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AACC

AMERICAN ASSOCIATION OF COMMUNITY COLLEGES

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National
Science
Foundation

design & layout: Leslie Jabara

National Science Foundation

Advanced Technological Education Centers

NWCET

NCSR

ATEEC

MATEC
Maricopa Advanced Technology Education Center

NJCATE

MATE
MARINE ADVANCED TECHNOLOGY EDUCATION CENTER

bio-link
ATE Center for Biotechnology

AIM CENTER

South Carolina
Advanced Technological Education
Center of Excellence

Northeast Center for Telecommunications Technologies
NCTT

SCATE

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The Advanced Technological Education Program at the National Science Foundation

The Advanced Technological Education (ATE) program at the National Science Foundation (NSF) promotes exemplary improvement in advanced technological education at the national and regional levels through support of curriculum development and program improvement at the undergraduate and secondary school levels, especially for technicians being educated for the high-performance workplace of advanced technologies at two-year colleges. Projects and centers have a vision for technician education used to guide project development; they not only prepare students to enter the technical workforce, but also provide a solid foundation for continued higher education.

Currently, the ATE program is supporting 11 Centers of Excellence and about 160 projects. Centers focus on systemic approaches to technician education, usually within a specific discipline (manufacturing, environmental technology, biotechnology); however, they are also expected to have broad impact on two-year colleges, secondary schools, the region and the nation. Projects focus on specific aspects of technician education, such as curriculum or educational materials development and adaptation, faculty or teacher preparation or enhancement, technical experiences for students or laboratory development. All centers and most projects have extensive partnerships with businesses and industry, and also with other two-year colleges, four-year colleges and universities and secondary schools. Cooperative efforts among projects and centers assure the ATE program is having a national impact. NSF and the American Association of Community Colleges (AACC) act as partners by holding annual principal investigator meetings and supporting efforts that encourage networking and joint activities. In 5 years of program operation, centers account for 27% ($32.6 of $120.0 million) of fund allocation, and projects for 66% ($79.6 million).

A. ATE Centers

In FY98, the ATE program supported one new Center of Excellence. San Francisco Community College District is coordinating activities for a National Center for Biotechnology. Working with 6 regional partners, the center acts as a clearinghouse for biotechnology in two-year colleges. Working closely with the biotechnology industry and research and development laboratories, primary objectives of the center include curriculum development, faculty and teacher enhancement and student recruitment and retention through internships and other work-related activities. This brings the total number of centers to 11:

ATE Centers	Focus	Years in Operation
Eastern Iowa CC District	Environmental Technology	4
TX State Tech College/Sweetwater	Distance Learning	4
Sinclair (OH) CC	Manufacturing	4
Bellevue (WA) CC	Information Technology	3
Middlesex County (NJ) College	Engineering Technology	3
Chemeketa (OR) CC	Natural Resources	3
SC Technical College System	Engineering Technology	2
Maricopa (AZ) CC District	Microelectronics	2
Springfield (MA) Technical CC	Telecommunications	1
Monterey Peninsula (CA) College	Marine Technology	1
San Francisco (CA) CC District	Biotechnology	0

B. ATE Projects

In addition to one new center and 3 renewals of centers in FY98, the ATE program support 38 new projects and continued to support 120 projects started in previous years. Official cost-sharing in the program is about 35% of NSF funds; however, project reports show that institutions are leveraging NSF funds with other funds better that 1:1. Projects are distributed across several categories.

ATE Project Distribution by Focus Area

	Continuing	New
Science-related Technologies, including Biotechnology, Chemical Technology, Agriculture, Geographic Information Systems and Environmental Technology	38	10
Engineering and Computer Technologies, including Manufacturing, Electronics, Aerospace Technology, etc.	46	17
Core Courses, including Mathematics, Physics and Multi / Interdisciplinary	36	11
TOTAL ATE-managed projects	*120*	*38*

Some examples of the new projects are

(i) **Science-related Technologies:** These projects involve two-year colleges, four-year colleges and universities, secondary schools, businesses and industries, professional societies and government agencies. For example, Catonsville Community College in Maryland is developing and implementing a state-wide system focused on bioscience technician education at community college and secondary levels. Alabama Southern Community College is collaborating with Auburn University to develop an industry-responsive pulp, paper and chemical process education curriculum.

(ii) **Engineering and Computer Technologies:** These projects cooperate with industries and other partners to educate students for the high-performance workplace. For example, Evergreen Valley College in California is developing and delivering a rigorous, transferable associate degree program in computer and information technology. York Technical

College in South Carolina is providing curriculum development and faculty enhancement in alternative energy transportation.

(iii) Core Projects: The ATE program supports development of core curriculum that gives students prerequisite mathematics and science skills as well as SCANS competencies necessary for success in technical programs. For example, New Hampshire Technical College is developing, testing and disseminating application-oriented, integrated curriculum software for introductory physics. Cypress College in California is organizing and providing GIS training to high school teachers and community college and university faculty in 5 locations around the country.

(iv) Special Projects: A few special projects are funded each year. Phi Theta Kappa, the honor society for community colleges, is conducting a multicomponent faculty enhancement and curriculum development project for 21 community colleges to strengthen SMET education in two-year colleges through replication of 7 ATE model projects. J. Sargeant Reynolds Community College and Virginia Commonwealth University are cooperating with NSF to examine the role of two-year colleges in the science, mathematics and technology preparation of future teachers.

C. Awards Won by ATE Projects and Centers

As one measure of recognition, over 25% of ATE-supported projects and centers report that they have won awards in FY98. The South Carolina Center won the National Leadership Forum Achievement Awards sponsored by Jobs for the Future. The Iowa Environmental Education Center won a national award for faculty development for its Fellow Program. Johns Hopkins was a finalist

for the Bellwether Award in Instructional Programs and Services. The Maricopa and New Jersey Centers and Intelecom won national awards for video products. A principal investigator at Piedmont Technical College won the South Carolina award for most innovative educator because of her work on the South Carolina ATE Exemplary Faculty project. Prince George's Community College was one of 6 recipients of the Hesburgh Awards, the only two-year college winner.

D. Program Issues

Core Content and Skill and Academic Standards: Industries recognize a need for more technicians with greater capability in science, mathematics and technology. Several ATE projects and centers are using or developing skill standards or competencies for their areas. Other projects use standards in creation of materials and professional development for teachers. For example, the American Chemical Society is developing both high school and community college instructional materials based on Voluntary Industry Standards and National Science Education Standards.

Recruitment, Retention and Placement of Students, Including Technical Experiences for Students and Parental Involvement: A universal challenge is to encourage students to enter technical programs and retain them through the associate degree. Many educational consortia currently link Tech Prep-fostered state and local consortia and School-to-Work programs with ATE projects. Cleveland State and 3 two-year colleges cooperate with schools to provide technical experiences that attract and prepare students for technical careers. Working with Washington State Tech Prep curricula, enhancing current teachers, building student recruitment models that involve parents and improving student access to assessment, tutoring, mentoring and internships.

Professional Development of Faculty and Teachers: In many technical fields, the knowledge required by technicians in industry is changing rapidly. Several ATE projects and center provide professional development opportunities for faculty and teachers. Consortia of two-year colleges and industry collaborate on professional development so that students are educated for the needs of local industries.

Adaptation and Implementation: ATE high quality educational materials, novel degree programs, effective educational practices, and thriving partnerships must be disseminated, adapted and implemented to meet needs in other institutional settings. ATE projects and centers work with disciplinary professional societies, publishers and regional and local consortia in faculty development and dissemination of products and methods. A new component in the FY2000 ATE program announcement will be the opportunity to support institutions to adapt and implement exemplary curricula or programs developed by other ATE projects or exemplary curricula developed in other programs that can be adapted to technological education. Through a Phi Theta Kappa project, developers of ATE materials mentor implementation of these materials in other community colleges.

E. For More Information

For more information, see http://www.ehr.nsf.gov/EHR/DUE/start.htm. For additional information, direct inquires to:

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North West Center for Emerging Technologies - NWCET

Focus on: Information Technology

About The Center

The mission of the North West Center for Emerging Technologies is to advance Information Technology (IT) education to improve the supply, quality, and diversity of the IT workforce by preparing and educating the versatile knowledge workers of the future.

The NWCET, through partnerships with a number of IT leaders representing corporations, professional organizations, and educational institutions, has taken a leadership role in determining the needs of IT employers and prospective IT students. In this role, the NWCET has identified Information Technology Skill Standards and is applying this data to the development of competency-based curriculum for IT students.

To support new and innovative IT programs and degrees, the NWCET is providing professional development opportunities for high school teachers and community college and four-year university faculty. In addition, the NWCET is working with an extensive partnership network to ensure transfer agreements among participating institutions. These agreements provide students with seamless transfer and ensure consistency and identified standards for a variety of IT degree programs. The NWCET is developing an extensive portfolio of electronic courseware, curriculum development kits, teaching and learning kits, on-line resources and other products specifically designed to enhance IT education methodologies.

Through continuing strong partnerships with government, industry, and education; ongoing research and development in IT education; strong professional development programs; and student recruitment and retention programs, the NWCET will provide IT education and leadership that meets the needs of both industry and education.

Northwest Center for Sustainable Resources - NCSR

Focus on: Natural Resources Ecosystem Management

About The Center

The Northwest Center for Sustainable Resources is a collaborative effort of partners from Oregon, Washington, northern California, and Maryland, including high schools, community colleges, four-year colleges and universities, private industries, government agencies, and Native American tribes. The Center's main activities focus on *curriculum development, faculty and teacher enhancement institutes, and national dissemination of products.*

The Center is developing natural resource technology programs which incorporate higher levels of mathematics and science, using an ecosystems-based approach which emphasizes sustainable methods for resource use. Key objectives for the Center include:

Curriculum development: Five "lead site" colleges and six "test site" colleges are developing advanced technological curricula in natural resource-based associate degree programs.

Faculty and teacher enhancement institutes: Field- and laboratory-based experiences are being offered for teachers from all levels of education around the country, along with tours of world-class research sites, and other professional development activities.

Promotion and dissemination: NCSR materials are being showcased at key national and regional conferences and symposia, and are being posted in an electronic clearinghouse. Promotional products are being disseminated, including a videotape and a report entitled "Visions for Natural Resource Education and Ecosystem Science for the 21st Century."

NCSR has over 100 partners from education, employment, Native American tribes, professional societies, and research groups.

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http://www.nwcet.bcc.ctc.edu nwinfo@bcc.ctc.edu

Resources We Can Provide

- Development and publication of Information Technology Skill Standards: *Building a Foundation for Tomorrow: Information Technology Skills Standards* (version 2.0 forthcoming June 1999)

- Curriculum Development Kit (CDK) for Technical support. The complete curriculum development model and sample curriculum are available in *Building a Foundation for Tomorrow: A Development Kit for Skill Standards-Based Information Technology Curriculum.*

- A High School IT Tech Prep Curriculum entitled *Building a Foundation for Tomorrow: Tech Prep Information Technology Skill Standards Based Curriculum*

- Information Technology career awareness videos, print materials, web site, IT showcases, and other programs for K-20 students

- Faculty development opportunities for K-20 educators at work-shops, Summer Institutes, faculty internships, and IT Skill Standards-based courseware training

For More Information

Visit our web site at: **http://www.nwcet.bcc.ctc.edu**

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503.315.4583 phone 503.399.5214 fax
http://www.chemek.cc.or.us/ncsr/ kels@chemek.cc.or.us

Resources We Can Provide

- Field- and lab-based faculty development institutes, including the *Ecosystem Institute*, *Natural Resource Institute*, and GIS institutes.

- Curriculum materials in natural resources technology two-year programs (available over the next 3 years); materials are being developed with an ecosystem approach, and reflect advancements in science, mathematics, and technology. Programs include agriculture, fisheries, forestry, geographic information systems, and wildlife.

- Up-to-date publications, videotapes, and other materials for institute participants and other NCSR partners.

- A web site with connections to model research sites, Native American tribal home pages, national secondary education ecology-based projects, job sites, and other natural resource-related information.

- A national model for natural resource educational programs which incorporate employers' needs, science- and research-based activities, Native American perspectives, and working partnerships.

For More Information:

Visit our web site at: **http://www.chemek.cc.or.us/ncsr/**

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Advanced Technology Environmental Education Center - ATEEC

Focus on: Environmental Technology

About The Center

ATEEC's mission is the advancement of environmental technology education through curriculum development, professional development, and program improvement in the nation's community colleges and high schools. ATEEC's major goals are as follows:

- Strengthen science, math, and technical curricula and instructional materials supporting environmental technology education
- Establish comprehensive programs of professional development
- Maintain an electronic and print clearinghouse to serve as a national center of environmental health and safety educational resources and as a network of environmental educators, business and industry, federal agencies, and professional societies.

A cornerstone of the Center's activities is the annual ATEEC Fellows Institute at the University of Northern Iowa, which convenes high school and community college math, science, and technology instructors. The first Institute objective is for the Fellows to assist ATEEC in strengthening the high school and college environmental technology curriculum. For example, the Fellows work with ATEEC in developing resources for improving or starting an environmental technology program.

The second objective of the ATEEC Fellows Institute is to provide an intellectual activity that invigorates the Fellows to teach current environmental topics objectively and enthusiastically. The Fellows critically examine "cutting edge" issues such as the environmental disaster, risk assessment, emerging and re-emerging diseases, and environmental justice. A current thrust of the Fellows is to develop and share via the ATEEC Web site teaching and learning activities related to the issues.

500 Belmont Road, Bettendorf, Iowa 52722
319.441.4096 phone 319.441.4080 fax
http://www.ateec.org ateec@eiccd.cc.ia.us

Resources We Can Provide

- Recommended core curriculum for two-year college and high school environmental technology programs.
- A systematically identified list of science, math, technical, and critical thinking knowledge and skill concepts basic to tasks performed across a variety of environmental technology occupations.
- Program assistance to schools in such areas as DACUM workshops, labor market assessment, program evaluation, articulation agreements, advisory committee development, and instructional design.
- Network for teachers, business and industry, and agency personnel concerned with environmental technology education.
- Professional development opportunities for teachers through the annual ATEEC Fellows Institute and regional PETE Instructor Conferences.
- Comprehensive World Wide Web site supporting environmental technology education: http://www.ateec.org.
- ATEEC partners are available to discuss your environmental technology program needs and ideas. A comprehensive email list is available at http://ateec.eiccd.cc.ia.us/contact.html

For More Information

Visit our web site at: **http://ateec.eiccd.ccia.us**

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Maricopa Advanced Technology Education Center - MATEC

Focus on: Microelectronics Manufacturing

About The Center

The Maricopa Advanced Technology Education Center (MATEC) is intended to be a permanent center for education and workforce development in the semiconductor industry. The Center's activities focus on three main areas: curriculum, faculty and workforce. MATEC's immediate customers are educational institutions and faculty who ultimately provide a supply of skilled workers to the industry.

Curriculum: MATEC has created a curriculum development system that features: **1)** a curriculum that is modular in design and is based on work place competencies and **2)** is delivered to faculty electronically with an accompanying electronic performance support system that helps keep faculty current with industry needs. MATEC has also established a clearinghouse for sharing of existing materials and support resources.

Faculty: a strategy has been established that develops and offers the most needed faculty growth workshops at multiple sites throughout the country. A total of 459 faculty from over 50 educational institutions have attended our 30 workshops.

Workforce: an electronic infrastructure has been created that promotes MATEC activities, conferences and career awareness items. A strong partnership has been developed with industry that has resulted in substantially increased numbers of schools offering or planning to offer semiconductor manufacturing programs. The Center's activities focus on community colleges and promote linkages to high school and four-year colleges.

MATEC currently has seventy-seven national and three international partners.

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602.517.8650 phone 602.517.8669 fax
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Resources We Can Provide

- Subsidized faculty development opportunities through focused workshops and national conferences.
- Curriculum modules, electronically delivered and supported, aligned to industry needs.
- Unique learning experiences for students based on Virtual Reality.
- Skill standards for equipment technicians.
- Career awareness program for high school students, parents and teachers.
- Information for re-careering adults.
- Modules for education in the workplace.

For More Information

Visit our web site at: **http://matec.org**

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New Jersey Center for Advanced Technological Education - NJCATE

Focus on: Engineering Technology

About The Center

Through the development of the Mecomtronics* Engineering Technology program, the New Jersey Center for Advanced Technological Education (NJCATE) has produced a model that provides a unique approach to the creation of curriculum for technician programs. NJCATE focuses on creating and disseminating innovative technical curricula and instructional materials, providing high-quality professional development programs for academic and industry personnel and technical assistance services to the educational community.

Curriculum: The NJCATE curriculum model provides a process and the procedures for the creation of integrated, interdisciplinary engineering technology programs. The development of the new Mecomtronics Engineering Technology program was the vehicle for the design and testing of the curriculum development model, which is based on technical and core competencies developed in partnership with industry, and is transferable to all other engineering and science technology disciplines. The Mecomtronics curriculum is modular in nature and provides an integrated approach to teaching the technical and core subject matter. It includes activity-based learning in the context of realistic projects and places strong emphasis on problem solving.

Professional Development: NJCATE offers a variety of workshops, conferences, and seminars to post-secondary and secondary educators and industry personnel, preparing them in the:

- Development, testing, and use of integrated technical curricula
- Methods for incorporating contemporary ethics standards into technical curricula
- Recruiting, retaining and ensuring success for students from underrepresented populations

***mecomtronics** - the engineering technology discipline that combines the areas of mechanical and electronics technology, and computer hardware and software systems linked through telecommunications.

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http://www.mccc.edu/njcate waintrau@email.njin.net

Resources We Can Provide

- An interdisciplinary model for the development of integrated curricula in technical and science disciplines.
- An associate in applied science degree program to produce a multifunctional engineering technician that exemplifies the NJCATE curriculum model.
- Instructional modules that include activities integrating core and technical subject matter.
- Technical assistance in the adoption and beta testing of the Mecomtronics program and the design and development of integrated education and training programs.
- Professional development and training workshops, conferences, and seminars in:
  - Using the NJCATE curriculum model to develop new technician programs.
  - The development and beta testing of integrated instructional materials and programs.
  - The integration of ethical and technological concepts into technical instruction.

For More Information

Visit our web site at: **http://www.mccc.edu**

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Marine Advanced Technology Education Center - MATE

Focus on: Marine Technology

About The Center

The MATE Center is a national consortium of organizations concerned with educating students and workers for careers as advanced technicians in marine occupations. The Center is coordinating and facilitating the development of programs in marine science and technology involving grades 9-16 and graduate schools, with an emphasis on community college program development. The MATE Center partnerships emphasize collaborations between educational institutions and employers to address their mutual needs.

The Center is building a clearinghouse for information transfer and dissemination. MATE has a web site (www.marinetech.org) and newsletters designed for faculty, students, and employers. The Center is developing a searchable database with information on employers, educators and job openings.

The MATE Center also identifies industry needs for a trained workforce through national and regional surveys. These are followed up with focused workshops with employers and technicians that target specific regions or occupations. The information gathered is used to develop industry guidelines for curriculum development.

Curriculum development: MATE partners are working on curricula in specific marine fields including; marine survey technology, oceanographic monitoring, ROV technology, aquaculture, and oil spill response. The MATE Center is working with state and federal agencies as well as private industry to develop technical internships as part of the curriculum for students, both at sea and on shore.

980 Fremont Street, Monterey, California 93940
831.646.4127 phone 831.646.3080 fax
http://www.marinetech.org ncrane@marinetech.org

Resources We Can Provide

- Partnership in a national consortium to improve marine technology education, and a forum for communication with stakeholders in the marine fields.
- Regional coastal centers from Alaska to Maine.
- Models for gathering information from diverse marine industries and statistics on selected areas in the marine field.
- Industry guidelines for marine survey technicians, marine research technicians, aquaculture technicians, and more.
- Information for students, educators and employers regarding jobs, educational and training opportunities, internships and resources.
- On-line information including curriculum modules, newsletters, industry information, resources and current events.
- Summer institutes (coastal and environmental monitoring in the summer 1999) for faculty and students.

For More Information

Visit our web site at: http://www.marinetech.org

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National Center for Biotechnology Education - Bio-Link

Focus on: Biotechnology

About The Center

Bio-Link is a national network that will enhance and expand biotechnology education programs by providing cutting edge professional development for instructors, by improving curriculum, by making use of technologies and by setting up a system for promoting the sharing of curriculum. The National Center, led by City College of San Francisco (CCSF), is located at the University of California San Francisco (UCSF) and works with Regional Centers across the nation including community colleges, baccalaureate institutions, high schools, national laboratories, and industry.

Goals

- Program improvement through the development and sharing of model programs and instructional materials
- Instructor enhancement through professional development
- Communication strengthening through the establishment of a national clearinghouse that promotes networking
- New program assistance
- School-to-Career awareness and implementation

Workforce Preparation

Bio-Link will create an on-line network that will provide the opportunity for all interested people to communicate. The Center will make use of the most advanced technologies to enhance student learning. The lasting affect will bring stimulating, cutting edge, and practical educational programs to the students, who will make up the nation's future workforce.

1855 Folsom Street, Suite #643, San Francisco, California 94103
415.487.2470 phone 415.487.2477 fax
http://www.bio-link.org

Resources We Can Provide

- Subsidized faculty development at national and regional levels
- Curriculum models in areas such as program elements, laboratory exercises, bioinformatics, bioethics, and bioprocessing
- Links to regional centers
- New program start-up information
- Sample articulation agreements
- Virtual laboratory of equipment and supplies
- Virtual biotechnology library
- On-line resources
- Updated directory of biotechnology technician preparation programs
- Connection to national skill standards for bioscience and agricultural biotechnology
- Links to industry specialists

Bio-Link has six Regional Centers in addition to the Northern California Biotechnology Center, an ED-Net funded consortium of community colleges already housed at City College of San Francisco.

1. Northeast Regional Center: New Hampshire Community Technical College
2. North Central Region: Madison Area Technical College
3. Northwest Region: Seattle Central Community College
4. Southwest Region: San Diego City College
5. South Central Region: Austin Community College
6. Mid Atlantic Southeast Region: University of Maryland School of Medicine

For More Information

Visit our web site: **http://www.bio-link.org**

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The Advanced Integrated Manufacturing Center - AIM

Focus on: Manufacturing

About The Center

The Advanced Integrated Manufacturing Center is a unique partnership between Sinclair Community College and the University of Dayton, both located in Dayton, Ohio. This effort brings together the considerable resources of one of America's leading public community colleges with one of the country's finest private Catholic universities.

The AIM Center's objectives are to:

- Improve the competitiveness of the manufacturing sector through mission-critical projects, education and training research.
- Upgrade the skills of the manufacturing workforce; provide an opportunity for continuous learning for manufacturing practitioners.
- Assist companies in planning and implementing advanced manufacturing technologies, processes and techniques.

Industry Focus: the center provides a community resource designed to help companies achieve world-class performance through improved business practices, improved workforce skills and appropriate use of technology. The AIM Center is a focus on people, processes, and technology through Process Improvements, Workforce Development, Production Support and Strategic Partnerships.

Educational Focus: a National Center of Excellence for Advanced Manufacturing Education employs a customer-driven approach to manufac turing education, encouraging strong customer/supplier relationships be tween manufacturers and educators. The program's goals are to:

- Develop interdisciplinary curriculum materials leading to an associate degree in manufacturing engineering technology.
- Provide substantial faculty development opportunities for all educators in manufacturing-related fields, including mathematics, science, communications, business, and engineering technology.

444 West Third Street, Dayton, Ohio 45402-1460
937.512.5357 phone 937.512.5372 fax
http://www.aimcenter.org

Resources We Can Provide

- **Manufacturing Workshops** – a wide range of workshops designed to improve the world-class competitiveness of manufacturers.
- **Virtual Engineering and Manufacturing** – spectrum of services and tools in the areas of computer modeling, analysis and prototyping can help reduce or avoid excessive engineering and production costs for manufacturers.
- **Process and Quality Improvement** – set of methodologies, tools sets and processes to help prioritize and address different work tasks.
- **Production Support** – available for industry projects and training activities featuring an operational manufacturing enterprise of manufacturing cells (Model Factory) including machine tools and plastics equipment.
- **Workforce Development** – helps manufacturers evaluate new candidates for high-tech manufacturing jobs as well as assessment and training services for existing employees.
- **Faculty Development** – assists in the development of instructors who will be providing education and training for those who are already employed as well as for tomorrow's workers and managers.
- **Curriculum Development** – develop manufacturing curricula for high school and college students. In addition to existing competency-based, field-tested programs, we can develop programs custom-tailored to the specific needs of individual schools and industries.

For More Information

Visit our web site at: **http://www.aimcenter.org**

Contact

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South Carolina Advanced Technological Education Center of Excellence - SC ATE

Focus on: Engineering Technology

About The Center

The South Carolina Advanced Technological Education Center of Excellence is a statewide systemic initiative designed to increase the quantity, quality and diversity of engineering technology graduates throughout the state's 16 technical colleges. An integrated, problem-based curriculum, collaborative interdisciplinary teaching strategies and incorporation of extensive active learning techniques together form the cornerstone of the SC ATE's strategy to recruit, retain and graduate more students in engineering technology programs.

Curriculum: SC ATE is implementing a pre-engineering technology curriculum component for underprepared students and for use in high schools. A new first-year engineering technology curriculum utilizes student teams to solve real-world industry problems.

Faculty Development: A well-trained cadre of faculty is using a variety of research-based teaching strategies and methodologies to more effectively respond to the diverse learning needs of students and model the workplace. SC ATE faculty members—many of whom were involved in developing the new curriculum—are serving as catalysts for teaching and curriculum reform throughout the SC Technical College System.

SC ATE Exemplary Faculty are working hand-in-hand with industry partners to bring real-world problems and problem-solving strategies into the classroom. SC ATE also has developed a strong partnership with state and local economic development and industry leaders to meet the "just-in-time" needs of the state's growing high tech

111 Executive Center Drive, Columbia, South Carolina 29210
803.737.9431 phone 803.737.8228 fax
http://scate.org scate@sbt.tec.sc.us

Resources We Can Provide

- Expertise and resources, including a 12-minute video and guide book, for faculty development and training to reform engineering technology education in two-year technical colleges.
- Curriculum models for pre-engineering technology and first-year engineering technology education.
- Student competencies and skills for engineering technology integrated courses.*
- Workplace Research Model—The model is designed to encourage interdisciplinary faculty teams to conduct workplace research and gain a better understanding of the technician's role in the workplace. By participating, faculty members learn how problem-based instruction better meets the needs of students entering the complex and technology-driven work environment.*
- Research data on retention of students in engineering technology programs.
- SC ATE Scholars initiative model—A collaborative effort between the SC Technical College System, SC Department of Commerce, SC Technology Alliance and local industry to create an expanded pool of engineering technology technicians.

*Available on the SC ATE web site:

For More Information

Visit our web site at: **http://scate.org**

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Northeast Center for Telecommunications Technologies - NCTT

Focus on: Telecommunications

About The Center

The Center is a catalyst for building an educational framework in New England and New York, with eventual transfer to the Nation, to meet the growing demand for highly skilled technicians and engineers in rapidly changing and emerging telecommunications fields. Partnerships are key to the NCTT strategy. Educational partners (over 36) are located at exceptional secondary and post-secondary institutions throughout the Northeast and the Center's Business and Industry partners (over 36) are located throughout the Northeast region and nationally. The educational and industrial collaborators together address the need of business/industry by designing, developing and implementing a new infrastructure for telecommunications technology education, one which can be replicated regionally and nationally.

The Northeast Center for Telecommunications Technologies (NCTT) has formed a regional network of secondary and post-secondary educational institutions (2-year and 4-year), leading edge telecommunications corporations, government and private agencies to: **1)** monitor emerging telecommunications-related technical trends, applications and innovations; **2)** develop relevant curricula and materials to support advanced technical education of the current and future workforce of telecommunications-related industries; **3)** become a location for internships with industry, in order to "earn while you learn", and to develop a center for idea gestation for industry and government related projects; **4)** explore and promote best educational methods and tools (classroom, electronic, virtual, and distance) for delivering world class technical education and related math and science disciplines in cost-effective ways to diverse populations of learners to ensure national workforce development; and **5)** ensure the continuing technical competency of faculties who teach telecommunications-related programs in the Northeast and nationally.

One Federal Street, Springfield, Massachusetts 01105
800.421.9556 phone 413.734.0515 fax
http://www.nctt.org

Resources We Can Provide

- Grant-funded faculty workshops and technology transfer conferences.
- Industry-driven curricula in lightwave, wireless, networking, and manufacturing in written, electronic, web-based, classroom, and media-enhanced formats.
- State of the art laboratory experiences and virtual laboratory delivery from laboratories around the Nation to enhance resource sharing.
- Telecommunications Technician competency-based knowledge standards in a customized graphical interface modality.
- Delivery tailored to traditional, re-career, adult and experiential, physically challenged, and distance learners, with on-line resource clearinghouse information on careers and information in telecommunications technologies.

For More Information

Visit our web site at: **http://www.nctt.org**

Contact

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Southwest Regional Center for Advanced Technological Education - SCATE

Focus on: Distance Learning

About The Center

The Southwest Center for the Advanced Technological Education (SCATE) is a collaborative of K-12, Two and Four Year colleges and universities, and business/industry to provide Advanced Technological Education (ATE) opportunities in rural communities. The Center's activities focus on three primary objectives, faculty development, curriculum redesign for delivery at a distance, and collaborative networking. SCATE provides curriculum via the Internet and Interactive Video.

Curriculum: SCATE has created new curriculum in **1)** Mechatronics, **2)** Polymer Injection Molding, **3)** Bio-Medical Instrumentation, **4)** AC/DC Electronics, and in **5)** Distance Learning Technology. In addition, SCATE is currently developing and testing two new programs in Graphics Animation and Computer Network Security, both designed to be taught collaboratively via Interactive Video and the Internet, with multiple institutions participating.

Faculty: The SCATE ITV Workshop is designed to provide the instructor with the necessary tools to effectively teach in an interactive video classroom. It is designed to address the pedagogical issues raised in this environment, not to train teachers to be technicians.

Workforce: The SCATE Web Site is a powerful tool that promotes SCATE activities, class scheduling and workshop opportunities. A strong partnership between community and technical colleges has resulted in a substantial increase in the number of schools in the Southwest offering ATE curriculum

300 College Drive, Sweetwater, Texas 79556
915.235.7326 phone 915.235.7309 fax
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Resources We Can Provide

- Faculty Development Workshops
  - Teaching in a Multi-Media Environment
  - ITV Demonstration Workshop
  - ITV Train the Trainer Workshop
  - Multi-Sensory Instructional Techniques Workshop
- ATE Curriculum packages prepared for delivery at a distance

  ATE Program opportunities at a distance
- Collaborative development
- Network Design and Implementation

For More Information

Visit our web site at: **http://www.scate.net**

Contact

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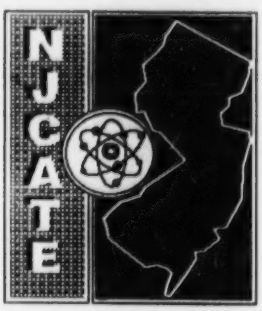
MATEC
Maricopa Advanced Technology Education Center



bio-link
ATE Center for Biotechnology

AIM
CENTER

South Carolina
Advanced Technological Education
Center of Excellence

Northeast Center for Telecommunications Technologies
NCTT